

REMARKS

This is intended as a full and complete response to the Office Action dated May 26, 2005, having a shortened statutory period for response set to expire on August 26, 2005. Please reconsider the claims pending in the application for reasons discussed below.

Claims 65-84 remain pending in the application and are shown above. Claims 65-84 are rejected. Reconsideration of the rejected claims is requested for reasons presented below.

Claims 65-67, 69, 71-74, 76-77, and 79-84 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Tepman, et al.* (U.S. Patent No. 5,186,718) in view of *White, et al.* (U.S. Publication No. 2003/0190220). Applicants respectfully traverse the rejection.

Tepman, et al. describes a processing system that includes intermediate processing or treatment chambers 26 and 27 (column 3, lines 64-66, column 4, lines 23-29, Figure 1). *Tepman, et al.* discloses that the chambers 26 and 27 may be used for pre-treating wafers. However, *Tepman, et al.* does not teach or suggest that the load locks 21 of the processing system include heating elements or a method that includes partially preheating wafers in a load lock.

White, et al. shows and describes a processing system that includes two load locks and three processing chambers between the two load locks (Figure 1, paragraph [0036]). *White, et al.* states that each load lock may be capable of heating the substrate.

The Examiner asserts that *White, et al.* describes transferring a wafer by a first robot (70, 72, transfer shuttle) into a transition chamber (paragraph [0047]). Applicants respectfully submit that paragraph [0047] of *White, et al.* describes transfer shuttles associated with the load lock chambers but does not teach or suggest transferring a wafer into a transition chamber. Thus, *White, et al.* does not teach or suggest partially preheating a wafer in a transition chamber, as *White, et al.* does not teach or suggest that the processing system described therein includes a transition chamber. Applicants further submit that *White, et al.* does not teach or suggest both

partially preheating a wafer in a load lock chamber and partially preheating the wafer in a second location.

The Examiner asserts that it would have been obvious to modify the teachings of *Tepman, et al.* with the teachings of *White, et al.* in order to decrease contamination and increase throughput by pre-cleaning and otherwise pre-treating wafers within the system prior to their entering high vacuum regions. Applicants note that *Tepman, et al.* states that one of the objects of the invention described therein was to “decrease contamination and increase throughput by pre-cleaning and otherwise pre-treating wafers within the system prior to their entering high vacuum regions” (column 1, lines 55-58). Applicants submit that *Tepman, et al.* (column 2, lines 44-53) provides a solution for decreasing contamination and increasing throughput by providing a chamber (26, 27) between the transfer chamber (28) and the buffer chamber (24) that may be used for precleaning wafers before they enter a high vacuum transfer station. There is no suggestion in *Tepman, et al.* that the preheating in the transition chamber is insufficient or that preheating in both the transition chamber and the load lock chamber would provide better results, such as further decreasing contamination. As discussed above, there is no teaching or suggestion in *White, et al.* to both partially preheat a wafer in a load lock chamber and partially preheat the wafer in a second location. Applicants further submit that the Examiner has not provided any evidence to support her assertion that modifying *Tepman, et al.*’s apparatus and process to include two preheating steps, *i.e.*, preheating in both a load lock and a transition chamber, would enhance throughput over *Tepman, et al.*’s apparatus and process that include one pre-heating step, *i.e.*, preheating in a transition chamber.

Thus, Applicants submit that the Examiner has not shown a suggestion or motivation in *Tepman, et al.* or *White, et al.*, individually or in combination, to add the load lock heating capability of *White, et al.* to the processing system of *Tepman, et al.* The mere recitation of a combination of references does not amount to particularly identifying a suggestion, teaching, or a motivation to combine the references. (See, M.P.E.P. § 2143.) The teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, not in the applicants' disclosure (See M.P.E.P. § 2143, citing *In re Vaeck*, 947 F.2d 488 (Fed.

Cir. 1991)). Still further, the Examiner must particularly identify any suggestion, teaching or motivation from within the references to combine the references (*See In Re Dembiczak*, 50 USPQ2d 1614 (Fed. Cir. 1999)).

Therefore, *Tepman, et al.* in view of *White, et al.* does not teach, show, or suggest a semiconductor wafer processing system, comprising a buffer chamber enclosing a first robot, one or more processing chambers attached to the buffer chamber, a transfer chamber enclosing a second robot, one or more processing chambers attached to the transfer chamber, wherein at least one vapor deposition chamber is attached to the transfer chamber, a load lock comprising a heating element and attached to the buffer chamber, and two or more transition chambers which separate the transfer chamber and the buffer chamber, the transition chambers each comprising a heating element disposed therein, as recited in claim 65. Applicants respectfully request withdrawal of the rejection of claim 65 and of claims 66-73, which depend thereon.

Tepman, et al. in view of *White, et al.* does not teach, show, or suggest a semiconductor wafer processing system, comprising a buffer chamber enclosing a first robot, one or more processing chambers attached to the buffer chamber, a transfer chamber enclosing a second robot, one or more processing chambers attached to the transfer chamber, wherein at least one vapor deposition chamber is attached to the transfer chamber, a first load lock comprising a heating element and attached to the buffer chamber, and two transition chambers which separate the transfer chamber and the buffer chamber, the transition chambers each comprising a heating element and two wafer holders disposed therein, as recited in claim 74. Applicants respectfully request withdrawal of the rejection of claim 74 and of claims 75-80, which depend thereon.

Tepman, et al. in view of *White, et al.* does not teach, show, or suggest a method of processing a wafer in a semiconductor wafer processing system, comprising introducing a wafer into a first load lock of a semiconductor wafer processing system, the semiconductor wafer processing system comprising a buffer chamber enclosing a first robot, one or more processing chambers attached to the buffer chamber, a transfer chamber enclosing a second robot, one or more processing

chambers attached to the transfer chamber, wherein at least one vapor deposition chamber is attached to the transfer chamber, a first load lock comprising a heating element and attached to the buffer chamber, and two or more transition chambers which separate the transfer chamber and the buffer chamber, the transition chambers each comprising a heating element disposed therein, partially preheating the wafer in the first load lock, transferring the wafer into one of the transition chambers and partially preheating the wafer in the transition chamber, transferring the wafer into one of the processing chambers attached to the transfer chamber, and then performing a vapor deposition on the wafer in the processing chamber, as recited in claim 81. Applicants respectfully request withdrawal of the rejection of claim 81 and of claims 82-84, which depend thereon.

Claims 68, 70, 75, and 78 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Tepman, et al.* in view of *White, et al.* as applied to claims 65 and 74 above, and further in view of *Beaulieu, et al.* (U.S. Patent No. 6,719,517). Applicants respectfully traverse the rejection.

Tepman, et al. and *White, et al.* are discussed above. *Beaulieu, et al.* does not teach or suggest a processing system that includes both a load lock comprising a heating element and transition chambers comprising heating elements. Thus, *Tepman, et al.*, *White, et al.*, and *Beaulieu, et al.*, individually or in combination, do not provide or suggest all of the elements of claims 65 and 74, upon which claims 68 and 70, and 75 and 78, respectively depend. Applicants respectfully request withdrawal of the rejection of claims 68, 70, 75, and 78.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicants' disclosure than the primary references cited in the office action. Therefore, Applicants believe that a detailed discussion of the secondary references is not necessary for a full and complete response to this office action.

Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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